

# PIPE BENDING MACHINES "CENTURION"

For pipe from 6.625" O.D. (168 mm) to 20.866" O.D.(914 mm)



The New Centurion Bender offered by CRC-Evans is the next generation of the state-of-the-art Bending Machines. Following is a list of new features which truly highlight the superiority of our design.

Outboard cylinder travel is now 82% faster than our standard machine. Increase is available due to new high capacity pump system.

Bending cylinder force is now 82% greater than standard machine by increased cylinder size and higher pressure rating.

Through re-engineering efforts a stronger frame was designed to now offer increased bending capacity. ( See Sheet A6 for improved specifications )

\* Hydraulic pump automatically adjusts output and pressure to engine horsepower, thus obtaining maximum benefit in speed and bending force under all conditions.

Rated pressure has been raised from 2000 psi to 2500 psi.

Newly supplied diesel engine designed for rugged dependability under all weather conditions.

Our new higher capacity operating valve is now mounted lower, thus offering the operator easy access from the ground.

Newly designed frame shape allows operator easy vision of die.

By mounting the engine and air compressor platform, ( Air Compressor Optional ) on the sides, the center of gravity is lower. This greatly increases stability of the machine.

The Stiff-back and tongue have been re-engineered to allow for mandrel storage.

Use of standard tie rod type bending cylinders for ease of maintenance and availability of parts.

\* Optional Two Stage Pump Available

# PIPE BENDING MACHINES "CENTURION"

For pipe from 6.625" O.D. (168 mm) to 20.866" O.D.(914 mm)

## SPECIFICATIONS

For pipe from 6.625" (168 mm) to 20.866" (914 mm)

Model	PBS 6 - 20
NOMINAL PIPE DIAMETER inches (mm)	6.625 - 20.866 (168 - 530)
POWER UNIT hp (kW)	Diesel 57 (42)
LENGTH inches (meters)	190.6 (4.84)
WIDTH inches (meters)	83.3 (2.12)
HEIGHT inches (meters)	82.4 (2.09)
NET WEIGHT (w/o Comp) (w/Comp) lb (kg)	11,500    12,500 (5215)    (5669)
UNDERCARRIAGE	Pneumatic Tires 11.0 X 16
OUT-BOARD CYLINDER BORE X STROKE	Two - 8" x 14" (203mm x 356mm)
IN-BOARD CYLINDER BORE X STROKE	Two - 8" x 6" (203mm x 152mm)
HYDRAULIC SYSTEM MAX. OPER. PRESSURE	2500 psi (176 kg/cm <sup>2</sup> )

## EXTRA COST OPTIONS

(Available at time of manufacture)

Power units to customer specifications.

Dual Tires or Tracks

Cold weather operating kit (-40°C or F).

Electric Motor.

Hydraulic driven Air Compressor and Tank to operate pneumatic mandrel.

Gasoline Engine (as available).

Stationary base to replace undercarriage.

Hydraulic power take-off for either a plug mandrel or a wedge mandrel.

## EXTRA COST ATTACHMENTS

Bending sets for out-of-range pipe.

Bending sets for specific coating.

Hydraulic power take-offs.

# PIPE BENDING MACHINES "STANDARD" for pipe from 6" (152 mm) to 36" (914 mm)

## PIPE BENDING DATA (US) 6" - 20" PIPE BENDING DATA - ALL DIMENSIONS IN INCHES

Nominal Pipe O.D.	Maximum Wall Thickness by Grade					Recommended Bend			
	in	X52	X60	X65	X70	X80	Degree Arc per Foot	Radius Feet	Max degree per 40 ft. joint
6-5/8	-	-	-	-	-	-	4.41	13	132.20
8-5/8	-	-	-	-	-	-	3.82	15	114.60
10-3/4	-	-	-	-	-	-	2.86	20	85.80
12-3/4	-	-	-	3.186	2.224		2.30	25	69.00
14	3.743	2.479	2.113	1.854	1.502		1.70	34	51.00
16	1.797	1.460	1.310	1.188	1.004		1.51	38	45.30
18	1.244	1.042	.946	.867	.743		1.10	52	33.00
20	.942	.799	.730	.672	.580		0.83	69	24.90
20.866	.849	.722	.661	.609	.527		0.83	69	24.90

Based on 85% efficiency and maximum strength = 1.2 x X# x 1000.

Blank Spaces indicate unlimited wall thickness.

These figures are recommended only and do not constitute a warranty.

All bends shown include the use of CRC-Evans Bending Mandrels. The figures given are "average". They will vary due to:

- The wall thickness of the pipe.

- The actual (as opposed to the nominal) yield of the pipe.

- Skill of the operator in handling the bending machine and the mandrel.

- The origin of the pipe (pipe mill, plate mill, etc.) and quality of the pipe.

- The type of pipe. Spiral seam pipe will normally accept only 75% of the recommended bend.

- The type of die and/or bending set being used (e.g., polyurethane lining or special radius dies).

An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiff back Normal unbend tangent for PB 6-20 is 5 feet.

Pipe is generally referred to by Nominal Pipe Size, but it will be noted that on sizes up to 12", the actual outside diameter is somewhat greater than the nominal size

# PIPE BENDING MACHINES "STANDARD" or pipe from 6" (152 mm) to 36" (914 mm)

## PIPE BENDING DATA (METRIC)

168mm - 530mm (CENTURION) PIPE BENDING DATA - ALL DIMENSIONS IN MILLIMETERS

Nominal Pipe O.D.	Maximum Wall Thickness by Grade					Recommended Bend			
	mm	X52	X60	X65	X70	X80	Degree Arc per Meter	Radius Meters	Max degree per 12 meter joint
168	-	-	-	-	-	-	14.47	3.96	129.53
219	-	-	-	-	-	-	12.53	4.57	112.17
273	-	-	-	-	-	-	9.38	6.10	83.97
324	-	-	-	-	80.92	56.48	7.55	7.62	67.59
356	95.07	62.97	53.68	47.10	38.16	31.16	5.58	10.37	49.95
406	45.64	37.09	33.26	30.18	25.49	21.49	4.95	11.57	44.31
457	31.60	26.46	24.04	22.02	18.87	16.87	3.61	15.85	32.32
508	23.94	20.30	18.54	17.07	14.73	13.73	2.72	21.04	24.35
530	21.56	18.35	16.79	15.47	13.38	12.38	2.72	21.04	24.35

Based on 85% efficiency and maximum strength = 1.2 x X# x 1000.

Blank Spaces indicate unlimited wall thickness.

These figures are recommended only and do not constitute a warranty.

All bends shown include the use of CRC-Evans Bending Mandrels. The figures given are "average". They will vary due to :

The wall thickness of the pipe.

The actual (as opposed to the nominal) yield of the pipe.

Skill of the operator in handling the bending machine and the mandrel.

The origin of the pipe (pipe mill, plate mill, etc.) and quality of the pipe.

The type of pipe. Spiral seam pipe will normally accept only 75% of the recommended bend.

The type of die and/or bending set being used (e.g., polyurethane lining or special radius dies).

An unbent end (tangent) is produced at each end of the pipe where the pipe contacts the stiff back Normal unbend tangent for PB 6-20 is 5 feet.

Pipe is generally referred to by Nominal Pipe Size, but it will be noted that on sizes up to 12", the actual outside diameter is somewhat greater than the nominal size.